AMENDMENTS TO THE CLAIMS

1-58. (Cancelled)

59. (Previously Presented) A method of controllably localizing particles at specific locations on a substrate, each specific location proximal to an individually addressable force transducing element, the method comprising:

providing a plurality of particles proximal to the substrate;

providing a substantially uniform magnetic field of low power consumption that encompasses the specific locations and the particles;

selecting one or more force transducing elements to be activated; and

controllably localizing one or more particles to the specific locations by activating the selected force transducing elements to transduce a motive force to one or more particles proximal to the corresponding specific location, wherein the magnitude of the transduced force is substantially altered by the presence of the uniform field; and

detecting, at one or more of the activated locations, the number of particles attracted to the location.

60. (Previously Presented) The method of claim 59, wherein the uniform field comprises a field from a permanent magnet.

61. (Previously Presented) The method of claim 59, wherein the uniform field includes a time-varying component.

62. (Previously Presented) The method of claim 59, further comprising regulating a passage of electromagnetic radiation by controlling the positioning of one or more of the particles.

63. (Previously Presented) The method of claim 59, wherein the uniform field is produced by a portable device.

64. (Previously Presented) The method of claim 59, further comprising the step of regulating the uniform field or force transducing element to reduce contact between the particles.

65. (Previously Presented) The method of claim 59, further comprising a step of regulating clumping of the particles using a method that is selected from the group consisting of: applying vibrations, applying electrical fields, incorporating charges within the particles, applying magnetic fields, and adjusting fluid flow to reduce contact between the particles.

66. (Previously Presented) The method of claim 59, wherein the particles are selected to comprise one or more discrete groups, and wherein each group has at least one substantially similar physical characteristic that affects localization of the group.

67. (Previously Presented) The method of claim 66, wherein at least one of the groups comprises particles of substantially similar size or effective radius.

68. (Previously Presented) The method of claim 66, wherein at least one of the groups comprises particles selected to comprise a substantially uniform shape.

69. (Previously Presented) The method of claim 59, further comprising the step of controllably moving at least one of the particles from a first preferred location to a second preferred location by activation of the force transducing elements.

70. (Previously Presented) The method of claim 69, further comprising sensing localization of the particle proximal to a preferred location.

71. (Previously Presented) The method of claim 59, further comprising:

releasing one or more of the particles from the corresponding specific locations; and

recovering the one or more released particles from the substrate.

72. (Previously Presented) The method of claim 59, wherein the force transducing elements generate a magnetic field, and the particles are magnetically active.

73. (Previously Presented) The method of claim 72, wherein the magnetically active particles include one or more discrete groups that are distinguishable on the basis of physical properties that affect their localization with respect to properties that are selected from the group of properties consisting of: magnetic field strength, time-bearing magnetic fields, viscosity of surrounding fluid, resistance of surrounding fluid, density, mass, inertia, size, geometric shape, and effective radius.

74-75. (Cancelled)

76. (Previously Presented) The method of claim 69, wherein the first preferred location and the second preferred location controllably exchange one particle.

77. (Cancelled)

78. (Previously Presented) The method of claim 70, further comprising using a microfabricated sensor for sensing localization.

79. (Previously Presented) The method of claim 59, wherein the specific location includes a crater formed in said substrate proximal the force transducing element.

80. (Currently amended) The method of claim 79, wherein the particles include magnetized beads, and wherein the step of detecting includes detecting inductance changes in one or more conducting coils proximal the crater, the inductance changes caused by the particles entering the crater.

81. (Previously Presented) The device of claim 79, wherein the particles are each substantially commensurate in shape and dimension as the crater.

82. (Previously Presented) The device of claim 79, wherein the particles include magnetic or magnetizable micro-beads.

83. (Previously presented) The method of claim 79, wherein the sample particles comprise a plurality of lid particles, each of sufficient size to substantially close an opening of the crater.

84. (Previously Presented) The method of claim 79, wherein the particles move a substantial distance, the distance being sufficient to exceed a radius of the respective particle.

85. (Previously Presented) The method of claim 59, wherein one or more of the force transducing elements generate a magnetic field.

86. (Previously Presented) The method of claim 59, wherein the localized particles comprise magnetically active particles.

87. (Previously Presented) The method of claim 86, further comprising applying the substantially uniform magnetic field to a portion of the substrate to increase the force on or between the magnetically active particles.

88. (Currently amended) The method of claim 59, ~~wherein the step of detecting further comprises~~ comprising detecting with a sensing element that is selected from the group consisting of: a pH sensor, an optical sensor, a radiation sensor, a magnetic induction sensor, a temperature sensor and a pressure sensor.

89. (Currently amended) The method of claim 59, ~~wherein the step of detecting further comprises~~ comprising detecting with a sensing element that has a position relative to the specific locations selected from a group of positions consisting of: under the specific locations, adjacent to the specific locations, surrounding the specific locations, above the specific locations, between the specific locations, operably connected to the specific location by a signal-routing conduit, and combinations thereof.

90. (Previously Presented) The method of claim 59, further comprising controllably repelling at least one of the particles from at least one of the specific locations.

91. (Previously Presented) The method of claim 59, further comprising localizing a predetermined number of particles to a predetermined one of the specific locations.

92. (Previously Presented) The method of claim 59, further comprising regulating the number of particles at a location by repelling additional particles from that location.

93. (Previously Presented) The method of claim 59, further comprising jointly controlling a plurality of the force transducing elements to pass a predetermined number of the particles between two adjacent locations.

94. (Previously Presented) The method of claim 93, wherein the particles comprise magnetically active particles and the force transducing element generates a magnetic field that transduces force to at least some of the magnetically active particles.